SOLNTSEV, B. K.

Electronic Test Generator of Electric Oscillations, Patent, Class $21a^4$, 8_{01}. No 103175; Elektrosvyaz' No. 1, Jan 57.

ABOLITS, Izrail' Abramovich. Prinimal uchastiye KIM, L.T., inzh.
SOLNTSEV, B.K., otv.red.; PETROVA, V.Ye., red.; SHKFER, G.I.,
tekhn.red.

[Generator devices and apparatus for long-distance communications]
Generatornye ustroistva v apparature dal'nei sviazi. Moskva,
Gos.izd-vo lit-ry po voprosam sviazi i radio, 1960. 47 p.
(MIRA 13:9)

(Telecommunication) (Oscillators (Electric))

h2276

S/809/62/000/000/003/003
E192/E382

AUTHOR: Solntsev, B.K.

TITLE: A frequency standard with a wide frequency spectrum

SOURCE: Novyye razrabotki v oblasti kontrol'no-izmeritel'noy apparatury; informatsionnyy sbornik. Ed. by A.S. Vladimirov. Moscow, Svyazizdat, 1962, 78 - 86

TEXT: The instrument generates frequencies of 10 Mc/s, 500 kc/s, 100 kc/s, 10 kc/s, 1 kc/s and 50 c.p.s. with an instability not exceeding $\pm 2 \times 10^{-8}$. The device is also provided with frequency outputs of 100 c.p.s., 10 c.p.s., 1 c.p.s., and 100 Mc/s, which are produced by a separate quartz-crystal generator. The instrument contains quartz-crystal oscillators for 5 and 100 Mc/s, a thermostatic device, nine frequency division stages (down to 1 c.p.s.), a frequency-doubler for 10 Mc/s, harmonic generators for 100 Mc/s, 100 kc/s and 10 kc/s, an oscillograph for observing the waveforms and a clock. Unlike the usual frequency standards, the instrument is based on a high-frequency quartz resonator which makes it possible to obtain accurate high frequencies. The oscillator for 5 Mc/s is based on a quartz-crystal resonator of AT-cut, which is in the

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A frequency standard ....

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form of a disc. This is excited by the third harmonic. The resonator is fixed at three nodal points situated at an angle of 120° with respect to each other at the points corresponding to the axes X' of the crystal. The output from the oscillator is applied to a grounded-grid amplifier and an output stage of low output impedance. For obtaining frequencies down to 100 kc/s the division is performed by regenerative dividers based on tubes, type 6Ж2П (6A2P). Similar dividers are used for frequencies down to 1 kc/s but these contain coils based on ferrite rings. Multivibrators and dividing decades are used for frequencies below 1 kc/s; the multivibrators provide the pulses for driving the decade dividers. The frequency is lowered to 1 c.p.s. by using the dividers. A frequency of 100 Mc/s is produced in an oscillator circuit employing a 20 Mc/s quartz-crystal resonator which is excited at the fifth harmonic. It is possible, by using such an oscillator, to obtain frequencies which are multiples of 100 Mc/s. Such signals have the advantage of being free from combination frequencies and parasitic modulation. Experimental investigation of the equipment showed that the frequency changes during the

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first month of operation were of the order of 2.5×10^{-7}. After this initial ageing of the crystals, the frequency instability was reduced to $(3 - 7) \times 10^{-8}$. The daily variations did not exceed $\pm 2 \times 10^{-8}$. There are 9 figures.

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SOLNTSEV, D.I., inzhener.

Electrochemical stabilization of ribbon clay. Transp. stroi. 6 no.8:20-21 Ag '56. (MLRA 9:10)

(Soil stabilization)

L 11160-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS--AFFTC/ASD--Ps-4/Pc-4/Pr-4--RM/WW

86
77

ACCESSION NR: AT3002183 S/2917/62/000/242/0134/0147

AUTHOR: Artamonov, V. S. (Candidate of technical sciences); Svyatkovskaya, Ye. D. (Engineer); Solntsev, D. I. (Engineer); Tikhonova, G. S. (Engineer)

TITLE: Polymer materials for corrosion protection of railroad bridges

SOURCE: Moscow. Vsesoyuzny*y nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta. Trudy, no. 242, 1962. Primeneniye plastmass na zheleznodorozhom transporte, 134-147

TOPIC TAGS: polymer anticorrosion paint, bridge painting, FL-03K primer, FL-013 primer, KhV-113 enamel, SKhBM-17 enamel, EP-51 enamel, E-4021 epoxy putty, FL-14, Al powder enamel, VL-08 primer, PKhV26 enamel, PKhV-715 enamel, PkhV-714 enamel, KhS010 primer

ABSTRACT: Experiments with various polymers intended for coating rr bridges are reported. A review of bridge-painting practices in various countries opens the article. Then some physical and chemical characteristics are presented of the following coating materials: FL-03K phenol-formaldehyde primer, FL-013 phenol-alkyd primer, KhS010 copolymer of vinyl chloride and vinylidene chloride, VL-08 phosphate primer, protective zinc primer; PKhV-26, PKhV-715, PKhV-714, and KhV113

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L 11160-63
ACCESSION NR: AT3002183

vinyl perchloride enamels; SKhB-17 enamel (copolymer of vinyl chloride and vinyl-butyl ester); SKhBM-17 enamel (copolymer of vinyl chloride, vinyl-butyl ester, and methyl-acrylate); FSKh-26 and 2062-F glyptal enamels; ED-6 epoxy plus Al powder lacquer; FL-14 phenol resin plus Al powder lacquer; EP-51 nitroalkyd-epoxy enamel; E-4021 epoxy putty; divinyl-acetylene paint. Quality of coatings was tested in laboratory, at atmospheric-corrosion stations, and on rr bridges (trial coats). These physico-mechanical characteristics of coats were determined: adhesion, impact strength, bending strength, thickness, hardness, and continuity. The sample coatings were also tested in a hydrostatic chamber, a sulfur-dioxide chamber, a weatherometer, and at atmospheric-corrosion stations in Moscow and in Kerch. Results of tests are described in detail. The best results were exhibited by the following materials which are, therefore, recommended for coating the rr bridges: E-4021 epoxy putty, KhV-113 enamel over FL-03K or FL-013 primer, SKhBM-17 enamel over the same primers, EP-51 enamel over the above epoxy putty, and FL-14 plus Al powder enamel over the above primers. Orig. art. has: 2 tables.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta (All-Union Scientific Research Institute of Railroad Transport)

SUBMITTED: 00 DATE ACQD: 10May63 ENCL: 00
SUB CODE: 00 NO REF SOV: 010 OTHER: 001

Card 2/2 cs/8c

L 10553-66 EWP(e)/EWT(m)/EWP(j)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/ETC(m) LJP(c)
ACC NR: AP6000772 JD/WW/WB/RM/WH UR/0231/65/000/006/0053/0055

AUTHOR: Solntsev, D. I. (Engineer)

ORG: None

TITLE: Use of polymer coatings

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta. Vestnik, no. 6, 1965, 53-55

TOPIC TAGS: anticorrosion additive, protective coating, polyethylene plastic, polyvinyl plastic, polystyrene, carbon, iron oxide, aluminum oxide, aluminum, polymer

ABSTRACT: The article gives the results of an investigastion of polymer coatings based on polyethylene and polyvinylbutyral resins. The coatings were applied by hot spraying. The main materials used for spraying were high and low pressure polyethylene, polyvinylbutyral, emulsified polystyrene, and mixtures of the above. Additives used included silver graphite, gas black, aluminum powder, iron oxide, chromium oxides, chromates, trivalent iron oxide, and others. The coatings were tested with respect to the following indices: resistance to shock and bending, adherence, resistance at 100% relative humidity and elevated temperature (70°), resistance under atmospheric conditions, and resistance to

Card 1/2 UDC: 678.5/.8.02:620.197

sulfuric acid. Results are exhibited in bar charts and in a table. It was concluded that hot-sprayed polymer coatings can be used successfully in the railroad industry for protection of parts from corrosion, for electrical insulation, and for decorative purposes. Pure polyethylene coatings are unstable under atmospheric conditions. Use of additives (such as carbon black and aluminum powder) considerably increases the atmospheric resistance of the coatings. Under atmospheric conditions, polyvinylbutyral coatings are more resistant than polyethylene ones. Polyethylene and polyvinylbutyral coatings are stable in dilute sulfuric acid. Polyethylene coatings do not stand up under the long-term action of concentrated sulfuric acid, and polyvinylbutyral coatings fail completely in this medium within a period of one day. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11,13/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 002

SOLNTSEV, G.D., uchitel' (g.Irpen' Kiyevskoy oblasti USSR)

Raising scion-rooted fruit plants. Biol.v shkole no.6: 90-91 N-D '59. (MIRA 13:3)
(Fruit culture--Study and teaching)

SOLNTSEV, G. S.

SOLNTSEV, G. S. -- "Investigation of Jet Discharge." Sub 4 Jun 52, Moscow Order of Lenin State U imeni M. V. Lomonosov. (Dissertation for the Degree of Candidate in Physicomathematical Sciences).

SO: Vechernaya Moskva January-December 1952

USSR/Electricity - High-Frequency Discharge   Apr 52

"Single-Electrode High-Frequency Discharge at Atmospheric Pressure at 31.7 Mc," G. S. Solntsev, M. Z. Khokhlov, Ye. A. Rodina, Moscow State U

"Zhur Eksper i Teoret Fiz" Vol XXII, No 4, pp 406-413

Single-electrode high-frequency discharge was studied in air, tech nitrogen and tech argon in a pressure range from 1 atm (flash discharge) down

215T23

to 5 mm/mercury (high-frequency discharge at low pressure) at a frequency of 31.7 mc. Indebted to Prof N. A. Kaptsov and P. A. Petrov. Received 28 Jun 51.

215T23

SOLNTSEV, G.S.

USSR/Electronics - Gas Discharge and Gas-Discharge Instruments, H-7

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35171

Abstract: h-f discharge channel increases over a range from 75 to 220 effective v/cm for air and 90 to 200 effective v/cm for N. For Ar, at a pressure of 100-500 mm mercury, the field intensity in the discharge channel amounts to 25-60 effective v/cm, and in the pressure range of 400-760 mm mercury (stringing discharge) it has a magnitude of 20-30 effective v/cm. The stringing of the discharge channel in Ar occurs at a pressure above 300 mm mercury, and with this the current intensity increases by several times and the field intensity drops sharply. The increase in the field intensity with pressure is attributed to the reduction in the length of the mean free path of the electron, to the loss of electrons because of formation of negative ions, and to the increased energy losses during the disassociation, chemical reaction, and processes of excitation of the oscillating and rotating levels of the molecules.

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SOLNTSEV, G.S.

109-3-5-13/17

AUTHORS: Mitsuk, V.Ye., Solntsev, G.S., Khokhlov, M.Z., Bulkin, P.S. and Zastenker, G.N.

TITLE: Electrical Discharge in Air at the Wavelength of 3.2 cm (Elektricheskiy razryad v vozdukhe na dline volny 3.2 cm)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol III, Nr 5, pp 698 - 703 (USSR)

ABSTRACT: The paper describes a method of measurement of the breakdown electric fields and the time lags in the electrical discharges in air and gives some experimental results. The block schematic of the experimental equipment is shown in Fig.1. This employed a pulsed magnetron operating at a wavelength of λ = 3.19 cm and having a repetition frequency of 300 c/s; the pulses were rectangular and had a duration of 2 μsec. The output of the magnetron was applied to a waveguide system which permitted the variation of the transmitted power and made it possible to measure the standing wave ratio and to observe the form of the pulse. The discharge was formed at the "neck" of a horn, which was situated under an evacuated glass jar. The seal between the input of the horn and the output of the waveguide was in the form of a polyethylene plate. An external radio-active source containing Co^{60}, having an activity of 10 millicurie was used as the ioniser for the

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Electrical Discharge in Air at the Wavelength of 3.2 cm

gas particles in the horn; the quanta of the γ-rays from the source had energies up to 1.2 MeV. The energy and the directivity of the γ-rays could be controlled by means of a special gun made of lead and fitted with a number of lead filters. The humidity of the air under the vacuum jar could be controlled by means of a special vessel filled with water whose temperature was kept constant by means of a thermostat. First, the statistical time lags of the discharge were measured and the results are shown in Fig.3; curves I, II and III were taken for three different intensities of the ionising source. Fig.4 shows the statistical time lags as a function of the applied electrical field for the maximum intensity of the ionising source; Curve I was taken at a pressure of $p = 32.4$ mmHg and curve II at $p = 45.5$ mmHg. Since the field intensities at the input of the horn (in the area of its neck) could not be measured directly, it was of interest to determine the relationship between the power transmitted through the waveguide and the field at the input of the horn. The problem is analysed in some detail and it is shown that for the investigated horn (see Fig.5) it could be assumed that the field in the horn was approximately equal to that in the waveguide. By using

Electrical Discharge in Air at the Wavelength of 3.2 cm

this result, it was possible to plot the values of the breakdown fields as a function of the pressure in the horn; the resulting curve is given in Fig.7; from this, it is seen that the lowest field is required at a pressure of about 5 mmHg. The results obtained agree with those reported by Posin (Ref.1), except that the intensity of the ionising source appeared to have no significant effect on the value of the breakdown field.

The authors express their gratitude to Professor M.A. Kaptsov for directing this work.

There are 7 figures, 3 references, 3 of which are Soviet and 3 English.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova (Physics Department of Moscow State University imeni M.V. Lomonosov)

SUBMITTED: January 22, 1957

AVAILABLE: Library of Congress

Card 3/3

1. Electric fields-Measurement-Methods 2. Magnetrons-Applications
3. Waveguides-Applications

SOV-109-3-6-13/27

AUTHORS: Solntsev, G. S., Zastenker, G. N.

TITLE: Influence of the Humidity of Air on the Formation of Ultra High Frequency Pulse Discharges (Vliyaniye vlazhnosti vozdukha na vozniknoveniye impul'snogo sverkhvysokochastotnogo razryada)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 6, pp 811-818 (USSR)

ABSTRACT: The aim of this work was the investigation of the effect of the humidity of air on the formation of ultra high frequency pulse discharges at a wavelength of 3.2 cm. The measurements were carried out by the method described in an earlier work (Ref.1). The discharge chambers were of two types. The first chamber was in the form of a glass jar having a diameter of 30 cm and a height of 40 cm; this was placed on a metallic plate which was coupled to a rectangular waveguide. The second chamber was in the form of a tube with a flat bottom, to which the end of the waveguide was attached. First, the measurements of the breakdown power were carried out for relative humidities η ranging from 2.10^{-4} to 30%. The results are shown in the graph of Fig.1 where the breakdown power W (in relative units) is plotted as a function of the total pressure p (in mm Hg)

Influence of the Humidity of Air on the Formation of Ultra High Frequency Pulse Discharges

for various values of η . The statistical delay time as a function of the breakdown power for various values of total pressure and the relative humidities are shown in Figs.2 and 3. From these results it follows that while the breakdown power is almost independent of the relative humidity, the delay time τ_3 tends to increase with increasing η .

The above results can be explained by solving the equation of Posin (Ref.8):

$$dn = \alpha n v \, dt - B_o p n \, dt \quad , \qquad (2)$$

where n is the electron concentration, α is the first Townsend coefficient, v is the electron velocity and B_o is the electron attachment coefficient. By combining Eq.(2) with the equation of motion, as expressed by Eq.(3) (where g is the coefficient of friction and E_o is the amplitude

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of the field), and Eq.(5), the concentration of electrons at the end of a pulse having a duration τ can be expressed by Eq.(6) where n_o is the initial electron concentration. The solution of Eq.(6) is in the form of Eq.(7) which expresses the electric field as a function of the electron concentration n_τ at the end of the pulse. By employing Eq.(7) and substituting appropriate values of the parameters for dry and humid air, it is found that the humidity has a negligible effect on the breakdown field. The average statistical delay time can be expressed by (Ref.10):

$$\bar{\tau}_z = \frac{1}{J_o(\tau_{эк} + \tau_{эф})fw} \quad , \qquad (13)$$

where J_o is the number of electrons produced in the effective volume of the discharge chamber in unit time, $\tau_{эф}$ is the effective pulse duration, f is the pulse

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repetition frequency, w is the probability of a breakdown due to the presence of a free electron and $\tau_{эл}$ is the lifetime of an electron. Eq.(13) shows that the average statistical delay should increase with decreasing $\tau_{эл}$. The experimental results are in good agreement with the equation, as can be seen from Fig.4. The authors express their gratitude to Prof. N. A. Kaptsov for directing this work. The paper contains 4 figures and 10 references, 6 of which are Soviet and 4 English.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova(Department of Physics of the Moscow State University, im.M.V.Lomonosov)

SUBMITTED: January 22, 1957

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1. Pulses - Analysis 2. Pulses - Moisture factors 3. Air - Properties 4. Mathematics - Applications

SOLNTSEV, G.S.

66702

24.2120 SOV/109-4-8-22/35

AUTHORS: Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and Sirotenko, I.G.

TITLE: Report on the Second All-Union Conference on Gas Electronics

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1339 - 1358 (USSR)

I.M. Podgornyy and N.G. Koval'skiy - "New Data on X-ray Radiation During Pulse Discharges"

V.A. Khrabrov and M.M. Sulkovskaya dealt with the investigation of the neutron radiation in powerful gas discharges in chambers with conducting walls.

N.A. Borzunov et al. - "Investigation of the Gas Discharge in a Conical Chamber".

S.M. Osovets et al. - "A Turn of Plasma in Transverse Magnetic Field".

I.G. Kesayev "Data on the Division of a Cathode Spot on Mercury in a Low-pressure Arc" (see p 1289 of the journal).

A.E. Robson (England) - "A New Theory of the Cathode Spot" (see p 1295 of the journal).

L.N. Breusova - "Positive Column in a Hydrogen Discharge With Stationary and Pulse Loads".

I.G. Nekrashevich and A.A. Labud - "Current Distribution on the Surface of Electrodes in Electric Pulse Discharges".

L.S. Rys - "Some Properties of Gas Discharges in Low-voltage in Halogen Counters".

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G.I. Glotova and V.L. Granovskiy - "Comparison of the Initial De-ionisation in the Isotopes of Hydrogen (H and D)".

L.A. Akol'zina communicated some results on the pre-breakdown current pulses at low pressures.

M.Ye. Vasil'yeva and A.A. Zaytsev - "Charge-density oscillation Waves in Cylindrical Plasma".

L. Pekárek of Czechoslovakia communicated some information on the wave-like phenomena in gas-discharge plasma.

B.G. Brezhnev dealt with the problem of the determination of the energy of fast ions in pulse discharges.

B.B. Kadomtsev - "Convection Instability of a Plasma String".

S.I. Braginskiy and V.D. Shafranov - "Theory of a High-temperature Plasma String".

The fifth section was presided over by N.A. Kaptsov and dealt with high-frequency currents in gases. The following papers were read:

V.Ye. Golant - "Formation of Ultra-high Frequency Pulse Discharges in Inert Gases".

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G.I. Pateyuk - "Influence of the Boundary Conditions on the Formation and Maintenance of High-frequency Discharges".

P.S. Bulkin et al. - "Investigation of a Self-maintained Ultra-high Frequency Pulse Discharge and the Process of its Development".

G.M. Zastenker and G.S. Solntsev - "Some Results of the Investigation of the Formation of Low-pressure High-frequency Discharges".

G. Mergenau (USA) - "Conductivity of Weakly Ionised Plasma".

A.A. Kuzovnikov - "The Conditions of Transition From High-frequency Corona Discharge at Atmospheric Pressures".

V.Ye. Golant - "The relationship Between the Characteristics of the Ultra-high Frequency Current and the Direct Current in Gas Discharges".

B.B. Lagov'yer analysed the conductivity of the disintegrating plasma in the window of a resonance discharge tube.

S.M. Levitskiy and I.P. Shashurin dealt with the applicability of the probe method to high-frequency discharges (see p 1238 of the journal).

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The paper by V. Ye. Mitsuk et al. was devoted to the investigation of the ultra-high frequency plasma by means of the Stark effect.

G.S. Solntsev et al. dealt with the problem of electric fields in a high-frequency discharge at low pressures.

Ye. Badarau of Rumania read a paper entitled "High-frequency Discharges in Methane".

The work of the sixth section was devoted to the problems of plasma and its radiation; the section was presided over by V.A. Fabrikant. The following papers were read:

Yu.M. Kagan - "New in the Probe Methods of Plasma Investigation" (Techniques)

V.I. Drozdov - "Oscillographic Measurements in Plasma".

V.A. Simonov and A.G. Mileshkin - "Investigation of the Movement of Plasma by Means of a Mass Spectrometer of the Transit Time".

A.V. Rubchinskiy - "Application of the Oscillations on a [illegible] to the Measurements of the Vapour of Gas

9 (9)

AUTHORS: Zastenker, G. N., Solntsev, G. S. SOV/48-23-8-1/25

TITLE: Some Results on the Formation of High-frequency Discharges at Low Pressure

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 8, pp 934 - 940 (USSR)

ABSTRACT: The discharge in argon at a frequency of 3.3 megacycles and at a pressure of from 0.4 to 15 mm Hg is investigated in the present paper. The measuring arrangement is shown in figure 1, the most important parts of which are a high-frequency impulse generator VCh and a photoelectronic multiplier FEU-19. With the entire arrangement the image of the discharge space is projected onto the photocathode of FEU-19 and the impulses of FEU-19 are then shown by an oscilloscope IO-4. Of the results three oscillograms, taken at a pressure of 9.5 mm Hg, are shown. Three stages of the formation of the discharge may be seen distinctly and it is ascertained that at lower pressure the formation progresses more monotonously. The consideration of the time of the statistical delay formed an important problem. Further, the influence of overvoltages on the various stages of discharge and the dependence of the duration of the

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increase of intensity on the pressure at various overvoltages was investigated. The results of measurement are summarized in two diagrams (Figs 4 and 5). In the discussion of the results, equation (2) for the concentration of electrons is mentioned and equation (7) for the time necessary to obtain a certain concentration is derived. It follows in the exponential part that the right-hand part of the Paschen curve obeys an exponential law and may be compared with formula (7). This comparison is made in diagram (Fig 6) and is in good agreement. Finally, it is summarized that the method elaborated here makes it possible to investigate the temporal change of various parameters of high-frequency discharge, that the formation time of low pressure lies in the range of from 300-10 μ sec, and that the theoretical computation of the duration of the initial stage of the discharge, in which the influence of space charge is negligible, shows good agreement with the experimental data. There are 6 figures and 8 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova, Fizicheskiy fakul'tet (Moscow State University imeni M. V. Lomonosov Physics Department)

9 (9)

AUTHORS: Bulkin, P. S., Solntsev, G. S., Ponomarev, V. N. SOV/48-23-8-2/25

TITLE: Investigation of Self-consistent Super High-frequency Impulse Discharges in Air and of the Process of Their Rating

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959 Vol 23, Nr 8, pp 941 - 947 (USSR)

ABSTRACT: In the first part of the present paper the experimental arrangement, fulfilling the following tasks is described: 1) The amplitude change of the reflected wave was captured in the wave guide. 2) The temporal change of linear measurement of the discharges was investigated by an electron-optical method. 3) The intensity of the luminosity of an arbitrary part of the discharge was studied by means of a photomultiplier. By means of a block scheme shown in figure 1 the experimental arrangement is discussed, and the method of work is explained by diagrams (Fig 2) and by 12 electron-optical photographs of the evolution of two discharges. The rating of the self-consistent discharge is investigated in the second part. The block scheme does not differ in principle from the one given in figure 1. The only difference is that the impulse generator produces

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Investigation of Self-consistent Super High-frequency Impulse Discharges in Air and of the Process of Their Rating

SOV/48-23-8-2/25

so-called impulse packets. An oscillographic representation of the luminosity phenomena of the discharge and the observation of the changes of reflected waves is discussed. In discussing the experiments, it is ascertained that three stages of development of the discharge could be found. In the three stages the following is ascertained: In the first stage an increase of the electron concentration, in the second stage a rapid increase of the measurements of the discharge, and in the third stage a smaller increase of the measurements of the discharge. These three stages of the production of such discharges of from 1 to 40 mm Hg, were ascertained by the here developed method of complex investigation and with the packet method of work of the high-frequency generator a self-consistent discharge could be obtained. There are 7 figures and 9 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova, Fizicheskiy fakul'tet (Moscow State University imeni M. V. Lomonosov, Physics Department)

Card 2/2

24(3)

AUTHORS: Solntsev, G. S., Porokhin, A. G., Chistyakova, N. M.

SOV/48-23-8-20/25

TITLE: Measurement of Electric Fields of High-frequency Discharges at Low Pressure by Means of an Electron Beam

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 8, pp 1026-1030 (USSR)

ABSTRACT: In a high-frequency discharge the electric field consists of a superposition of the alternating field of high frequency on the constant field caused by spatial distribution of charges in the discharge space. Measurement of the electric field by means of the deflection of an electron beam was used for several investigations (Refs 1,2). In part I of the present paper, the experimental methods are described which were applied by the authors. The construction of the discharge plant is described in figure 1. It consists of a discharge tube, perpendicular to it are placed an electron accelerator and an observation screen. The discharge space may be changed by moving one of the electrodes from outside by means of a magnet. The shift of the electron beam is photographically recorded on the luminous screen. Figure 2 represents an example. To apply this method

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Measurement of Electric Fields of High-frequency Discharges at Low Pressure by Means of an Electron Beam

it is necessary that the time τ, which the electrons need to traverse the discharge space, is less than the oscillation period T. In the diagram of figure 1, the dependence of τ/T on frequency is described for four different acceleration voltages. It is found that the skin effect is of less importance, that the electric eddy field is negligible, and that the perturbation of electrons must be low in the space under discussion. The measurement results of experiments carried through in argon at a pressure of 10^{-2} torr and a frequency of 3.3 megacycles are summarized by the diagrams of figure 4. They show the distribution of the electric high-frequency field and of the space-charge field. Further, the instantaneous distribution of the potentials is investigated, and the distribution of the space-charge at various instants of the period is calculated by means of Poisson's equation. The results are shown in the diagram of figure 7 for three different phases. There are 7 figures and 5 references, 2 of which are Soviet.

Measurement of Electric Fields of High-frequency Discharges at Low Pressure by Means of an Electron Beam SOV/48-23-9-20/25

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova Fizicheskiy fakul'tet (Moscow State University imeni M. V. Lomonosov, Department of Physics)

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PHASE I BOOK EXPLOITATION SOV/4705

Radiofizicheskaya elektronika (Radiophysical Electronics) [Moscow] Izd-vo Mosk. univ., 1960. 561 p. Errata slip inserted. 15,000 copies printed.

Ed.: N. A. Kaptsov, Professor; Tech. Ed.: M. S. Yermakov.

PURPOSE: This book has been approved by the Ministry of Higher and Secondary Special Education, USSR, as a textbook for schools of higher education. It can be also used by scientific personnel working in the fields of radio engineering and electronics.

COVERAGE: The book presents problems of vacuum, cathode, semiconductor, and gas electronics, on which is based the operation of vacuum-tube and gas-filled devices, including microwave devices and also apparatus and instruments used in electron optics. It is assumed that the readers of this book have preliminary preparation in the fundamentals of nuclear physics, quantum mechanics, statistical physics and electrodynamics. The book was written by a group of lecturers of the Physics Division of Moscow State University.

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Chapters I, II, and III were written by Professor N. A. Kaptsov; Ch. IV. by Professor A. D. Ovcharov and Docent V. M. Lopukhin; Ch. V. by Professor G. V. Spivak and Assistant Ye. M. Dubinina; Ch. VII. by Docent A. A. Zaytsev and Professor N. A. Kaptsov; Ch. VIII. by Professor N. A. Kaptsov and Assistant G. S. Solntsev. The authors thank Professor S. Yu. Luk'yanov and Docent M.D. Karasev, who reviewed the book. There are 76 references: 68 Soviet (including 14 translations), 6 English, and 2 German.

TABLE OF CONTENTS:

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Radiophysical Electronics

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21590

S/109/60/005/010/019/031
E033/E415

9.3150 (1049, 1140, 1532)
26.2340

AUTHORS: Zastenker, G.N., Solntsev, G.S. and Shvilkin, B.N.

TITLE: Processes in a High-Frequency Discharge of Low-Pressure With Change of Electrode Voltage

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1709-1716

TEXT: A possible mechanism of a high-frequency discharge of low-pressure is described. The explanation assumes a re-distribution of the field in the discharge gap and constant field strength in the plasma for different applied voltages. The relationships between the electron density, the discharge current and the voltage are deduced and the calculated data is compared with results obtained experimentally by investigation of the current and illumination intensity of a 12 Mc/s discharge in air (0.4 to 30 mm Hg pressure) with external electrodes. The mechanism, which sustains the constant field strength in the plasma with over-voltage, may be, in the authors' opinion, a re-distribution of the field strength in the discharge gap, such that the field strength in the central part remains equal to the breakdown value, but increases in the neighbourhood (within

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Processes in a High-Frequency ...

distance d_1) of the electrodes. The electron density is idealized: in the near-electrode regions, the electron-density is assumed negligibly small, i.e. zero, and in the central regions, it has a constant value n. It is deduced that, for $pd \gg 30$ mm Hg · cm

$$n = \frac{m\omega\nu_{cm}\, d}{8\pi e^2 d_1}\sqrt{(1+W)^2 - 1}, \qquad (6)$$

where m is the mass of an electron, ω is the angular frequency of the field ν_{cm} is the frequency of collisions of electrons with neutral molecules, d is the gap length, e is the electron charge, W is the over-voltage

$$W = \frac{U_o - E_3 d}{E_3 d}$$

U_o is the maximum amplitude of the voltage applied to the discharge gap, and E_3 is the field strength at which breakdown occurs. In this case, attachment of electrons to the molecules of the electro-negative gas is the basic de-electronization process.

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Processes in a High-Frequency ...

For the case when $1 < pd < 30$ mm Hg · cm, then, in a pulsed "striking" regime, free diffusion is the basic de-electronization process and

$$n = \frac{m\omega\nu_{cm}d}{8\pi e^2 d_1}\sqrt{(1+W)^2\frac{E_0^2}{E_{3\,мин}^2}-1}. \qquad (6a)$$

where $E_{3\,мин}$ ($E_{3\,min}$) is the breakdown field strength for high pd values, and E_3 is the actual breakdown field strength. To check the relationships (6) and (6a), it was necessary to establish the connections between the electron density and the measured discharge current, and also between the current and the voltage across the gap. To conform to the method of measurement, in which a compensation circuit was used, the "inter-electrode capacity current" ($i\omega S U/4\pi d$; S = the cross-sectional area of the discharge tube, U = the voltage applied across the gap) was excluded. Then the amplitude of the measured current depends on the electrode voltage and electron density as follows:

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$$I_0 = \frac{U_0 \omega S e^2 (d - 2d_1) n}{d \sqrt{(\omega n d \nu_{em})^2 + (\omega^2 m d - 8\pi d_1 e^2 n)^2}}. \qquad (7)$$

From (6) and (7), the discharge current is related to the overvoltage by

$$I_0 = \frac{U_3 \omega S (d - 2d_1)}{8\pi d d_1} \sqrt{(1 + W)^2 - 1}, \qquad (8)$$

where U_3 is the amplitude of the breakdown voltage. A similar expression can be obtained for low pd values by using Eq.(6a) and (7). By re-arrangement of Eq.(7), the density is found by

$$n = \frac{8\pi m \omega^2 d_1 d^3 + m\omega\nu_{em} d^3 \sqrt{(U_0/I_0)^2 \omega^2 S^2 (d - 2d_1)^2 - (8\pi d d_1)^2}}{e^2 [(U_0/I_0)^2 \omega^2 S^2 (d - 2d_1)^2 - (8\pi d d_1)^2]}. \qquad (9)$$

The experimental set-up was designed for studying the ionization state of the gas in the gap with different voltages across it. The integral intensity of the glow discharge was registered and the discharge current was measured. The block schematic is given and

the set-up is described. The tube diameter was 40 mm, length 21 mm, and the diameter of the external plane-parallel electrodes was 70 mm. The supply oscillator power was approximately 800 watts with a very low internal impedance. The pulsed operation permitted the discharge to be studied immediately after its formation before the heating of the gas exerted any effect. The volt-ampere characteristics of the discharge for different pressures are given. The steepest increase of current with increase of voltage corresponds to the transition from the form of discharge, where the volume processes play the basic role, to the form where electron emission from the walls is fundamental (from the α- to the γ-discharge). The following results are presented graphically and their interpretation discussed: 1) dependence of the discharge current on the over-voltage, 2) the electron density dependence on the over-voltage. Calculated results are given on the same graphs for purpose of comparison. There are 6 figures and 12 references: 5 Soviet and 7 non-Soviet.

21596
S/109/60/005/010/019/031
E033/E415

Processes in a High-Frequency ...

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova (Physics Faculty of Moscow State University imeni M.V.Lomonosov)

SUBMITTED: December 11, 1959

Card 6/6

21652

S/109/61/006/003/007/018
E032/E314

24.2120 (1049, 1482, 1502)
26.2311

AUTHORS: Zastenker, G.N., Solntsev, G.S. and Shvilkin, B.N.

TITLE: On the Mechanism of Formation of a Low-pressure High-frequency Discharge in Air

PERIODICAL: Radiotekhnika i elektronika, 1961, Vol. 6, No. 3, pp. 387 - 394

TEXT: The time of formation of a high-frequency discharge in air was investigated at pressures in the range 0.4 - 30 mm Hg and frequencies 12, 6, 3.3 Mc/s. The discharge was excited in a tube with external disc electrodes (diameter of the electrodes 70 mm, distance between them 21 mm). The time of formation was measured oscillographically and the radiation emitted from the discharge gap was recorded as described in previous papers (Refs. 1, 5). Oscillograms were used to determine the time t_{exp} from the beginning of the formation of the discharge to the instant at which the increase in the current or the glow of the discharge departed from the exponential law. The total time of formation t_{form} was also determined. It was

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On the Mechanism of ....

established experimentally that the time of formation of the low-pressure, high-frequency discharge in air lies between 5 and 200 μs. The transition from the α-discharge to the γ-discharge is accompanied by a reduction in the time of formation. Fig. 6 shows the comparison between the experimental and calculated (Gould and Roberts - Ref. 4) data for the exponential stage of the increase in the electron concentration. In this figure, the full curves are theoretical (Ref. 4) and the experimental points are as follows: 1 - pd = 63 mm Hg; 2 - pd = 6.3 mm Hg; 3 - pd = 40 mm Hg; 4 - pd = 4.2 mm Hg; 5 - pd = 21 mm Hg; 6 - pd = 2.5 mm Hg; 7 - pd = 10.7 mm Hg (E/p is in V/cm.mm Hg; pd is in mm Hg.sec). Fig. 7 illustrates the development of the discharge in time at 12 Mc/s (a - p = 3 mm Hg, W = 23.3%; б - p = 10 mm Hg, W = 16.1%; B - p = 20 mm Hg, W = 31%. W is the overvoltage. The continuous curves are theoretical, the crosses and triangles are experimental; 1 - relative increase in the discharge current; 2 - relative increase in the intensity of the glow, I). As can be seen from Fig. 6, a qualitative

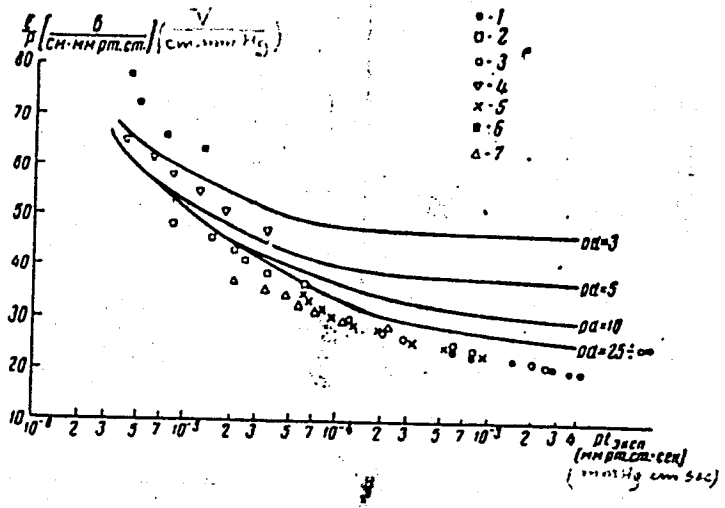
confirmation of the theory given in Ref. 4 is obtained, although exact agreement is not found. Above 5-10 mm Hg t_{exp} is independent of pd , which suggests that electron capture predominates, as compared with the diffusion to the walls. The possible reason for the discrepancy between theory and experiment may be the fact that the electron drift and the space-charge field are not taken into account in theory. In particular, the difference between the theoretical and experimental curves in Fig. 7 is said to be due to distortion of the field by the space charge. It is suggested that corrections for the space charge must be introduced into the theory. There are 7 figures and 11 references: 3 Soviet and 8 non-Soviet.

SUBMITTED: June 29, 1960

X

On the Mechanism of ....

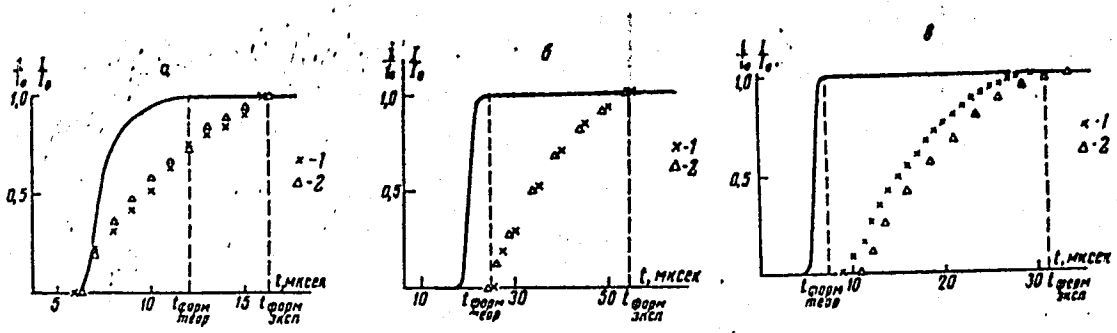
Fig. 6:



Card 4/5

On the Mechanism of ....

Fig. 7:



Card 5/5

BASOVA, N.V.; DEVYATOV, A.M.; SOLNTSEV, G.S.; SKVORTSOV, P.I.

Calculation of the parameters of a low-pressure plasma in neon. Vest. Mosk. un. Ser. 3: Fiz., astron. 18 no.2:37-42 Mr-Ap '63. (MIRA 16:6)

1. Kafedra elektroniki Moskovskogo universiteta.
(Plasma(Ionized gases))

BULKIN, P.S.; PONOMAREV, V.N.; SOLNTSEV, G.S.

Superhigh-frequency pulse discharge in long tubes. Zhur. tekh. fiz. 33 no.10:1222-1226 O '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet, kafedra elektroniki.

L 38200-66 EWT(1)

ACC NR: AP6029724 SOURCE CODE: UR/0109/66/011/005/0966/0967

AUTHOR: Zernov, D. V.; Timofeyev, P. V.; Fursov, V. S.; Migulin, V. V.; Spivak, G. V.; Spasskiy, B. I.; Nilender, R. A.; Grozdover, S. D.; Shemayev, A. M.; Solntsev, G. Ye.; Kuzovnikov, A. A.; Zaytsev, A. A.; Vasil'yeva, M. Ya.; Mitsuk, V. Ye.; Dubinina, Ye. M.; Zheludeva, G. A.

ORG: none

TITLE: Nikolay Aleksandrovich Kaptsov

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 966-967

TOPIC TAGS: electric engineering personnel, magnetron, klystron, corona discharge, gas conduction, gas discharge plasma

ABSTRACT: N. A. Kaptsov passed away 10 February 1966. He was a student of the famous P. N. Lebedev, and performed many fundamental investigations in the development of modern electronics. He was the creator and leader of the chair of electronics of Moscow State University. He developed the concept of phase grouping of electrons. His ideas are the basis for the development of the magnetron and klystron. He developed the concept explaining the phenomenon of corona discharge. He also developed ideas connected with formation of gas conduction and phenomena in a gaseous-discharge plasma. Kaptsov served for years as the head of the physical laboratory and consultant to the Moscow Electron Tube Plant. He was the author of numerous books, including "Physical Phenomena in Vacuum and in Gases, which was translated into foreign languages; he also created and taught numerous electronics courses. [JPRS: 36,501]

SUB CODE: 05, 09 / SUBM DATE: none

L 45925-66 EWT(1) IJP(c) AT

ACC NR: AP6028609 SOURCE CODE: UR/0057/66/036/008/1376/1382

65
62
B

AUTHOR: Ponomarev,V.N.; Solntsev,G.S.

ORG: Moscow State University im. M.V.Lomonosov, Physics Department (Moskovskiy gosudarstvennyy universitet. Fizicheskiy fakul'tet)

TITLE: The propagation constant for waves in a rectangular waveguide 25 containing a dielectric tube filled with plasma

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 8, 1966,1376-1382

TOPIC TAGS: plasma diagnostics, waveguide, wave propagation, mathematic physics, RECTANGULAR WAVEGUIDE

ABSTRACT: The authors calculate the propagation constant for H_{01} waves of a rectangular waveguide containing a hollow dielectric cylinder filled with a plasma whose density is such that the Langmuir frequency of the plasma is of the order of the frequency of the waves. The calculations were undertaken because of their possible applications in plasma diagnostics. It is assumed that the circumference of the dielectric cylinder is small compared with the wavelength, and the plasma is described by an expression for its complex dielectric constant that contains the Langmuir frequency and the electron-collision frequency. The effect of the dielectric wall of the tube is calculated, and the final expressions for the real and imaginary parts of the propagation constant are given in a form suitable for direct application to plasma diagnostics. The propagation constant exhibits resonance behavior at a fre-

Card 1/2 UDC: 538.566.5; 533.9.07

L 45925-66
ACC NR: AP6028609 3

quency close to the Langmuir frequency of the plasma (the resonance frequency is shifted slightly by the presence of the dielectric wall of the tube). The experiments of P.S.Bulkin, V.N.Ponomarev, and G.S.Solntsev (ZhTF, 33, No.10, 1222, 1963) on confined plasmas in waveguides are discussed briefly and are interpreted with the aid of the derived equations. Orig. art. has: 28 formulas and 3 figures.

SUB CODE: 20 SUBM DATE: 11Jun65 ORIG.REF: 007 OTH.REF: 004

Card 2/2

SOLNTSEV, K. M. Cand. Agricult. Sci.

Dissertation: "Effect of Rations with an Excess of Phosphorus and Calcium on the Metabolism and Development of Growing Pigs." Moscow Fur and Felt Inst., 2 Jul 47.

SO: Vechernyaya Moskva, Jul, 1947 (Project #17836)

SOLNTSEV, K.M.

The effect of acid and alkaline nutrition on the metabolic processes. K. M. Solntsev and L. I. Dushenkova. *Trudy Yugo-Vostoch. Zonal'n. Nauch.-Issledovatel. Inst. Zhivotnovodstva i Kormodobyvaniya, Saratov* 1953, 141-50; *Referat. Zhur. Khim., Biol. Khim.* 1955, No. 10370.—The addition to the basic ration of rabbits of a mixture of alkaline salts (Na_2CO_3, K_2CO_3, $CaCO_3$, $MgCO_3$) (I), or of acids (H_2SO_4, H_3PO_4, HCl) (II), or of a mixture of I and II in mol. equivalence (III) had a profound effect on the digestion and assimilation of the ingested organic substances. Protein digestion in rabbits which received III exceeded by 12% that in rabbits receiving I or II. The digestion of N-free extractable substances was superior with I and with II. The N balance was higher in the rabbits whose ration was supplemented with III. Heat emanation was lower in rabbits receiving supplement I.

B. S. Levine

1. K. M. SOLNTSEV.

2. USSR (600)

4. Agricultural Research

7. Achievements of the Southeastern Regional Institute for Scientific Research in Animal Husbandry and Feed Procurement. Dost. sel'khoz. no. 1. 1953

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SOLNTSEV, Konstantin Mikhailovich

[Stall and field-shelter system for the summer feeding of cattle] Letnee stoilovo-lagernoe soderzhanie skota. [Saratov] Saratovskoe kn-vo, 1954. 59 p. (MLRA 9:9)
(Cattle--Feeding and feeding stuffs)

SOLNTSEV, Konstantin Mikhaylovich

[The care of cattle in winter] Zimnee soderzhanie skota. [Saratov] Saratovskoe kn-vo, 1954. 114 p. (MIRA 9:9)
(Stock and stockbreeding)

USSR/Farm Animals. The Swine Q-4

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 50069

Author : Solntsev K.M.
Inst : -
Title : Stimulating Meaty Fattening by Biomycin

Orig Pub : S. Kh. Povolzh'ya, 1957, No 9, 53-56

Abstract : During a 5 month fattening period one group of young sows received a 5 percent biomycin solution which was added to their rations insufficient in digestible proteins (63 percent for the 1st month, 73 percent for the 2nd month, and 72 percent for the 3rd month). The biomycin solution (30 mg per one feed unit) was added to the fodder once every 24 hours. The 2nd group did not receive any biomycin. In the 1st group a better intake of fodder was observed, as well as a higher average weight gain per day (500-550 gr as against 300 gr in the control group), and a better utilization of feeds (5.64 of feed unit per 1 kg of weight increase as against 7.06 in control animals.).

Card : 1/1

SOLNTSEV, K.M., kand. sel'skokhozyaystvennykh nauk,; KIREYEV, V.N., kand. sel'skokhozyaystvennykh nauk

Two-stage method of harvesting oil varieties of sunflower. Zhivotnovodstvo 20 no. 7:27-30 Jl '58. (MIRA 11:8)

1. Balashovskaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya stantsiya.

(Sunflowers--Harvesting)

SOLNTSEV, K.M.

Testing the preparation Aukorm-2. Antibiotiki, 4 no.2:110-112 Mr-Ap '59. (MIRA 12:7)

1. Bolashovskaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya stantsiya.

(CHLORTETRACYCLINE
side product aurkorm-2, growth stimulating eff. on young pigs (Rus))

SOLNTSEV, K.M., kand.sel'skokhoz.nauk

Commercial production of feed antibiotics. Zhivotnovodstvo 21 no.10:65-69 O '59. (MIRA 13:2)

1. Zamestitel' direktora Belorusskogo nauchno-issledovatel'skogo instituta zhivotnovodstva.
(White Russia--Antibiotics)
(Feeding)

SOLNTSEV, Konstantin Mikhaylovich, kand. sel'khoz. nauk ; DOMASHEVICH, O., red.; KHOREVSKIY, V., tekhn. red.

[Antibiotics in the feeding of farm animals] Antibiotiki v kormlenii sel'skokhoziaistvennykh zhivotnykh. Minsk, Gos. izd-vo BSSR Red. sel'khoz. lit-ry, 1960. 116 p. (MIRA 14:7)
(Antibiotics) (Feeds)

LEONOV, N.I.; SKRYABIN, G.K.; SOLNTSEV, K.M.; KRUSANOV, N.A., red.; DEYEVA, V.M., tekhn. red.

[Antibiotics in animal husbandy]Antibiotiki v zhovotnovodstve. Moskva, Sel'khozizdat, 1962. 231 p. (MIRA 15:10)
(Stock and stockbreeding) (Antibiotics)

SOLNTSEV, Konstantin M.

"Production and use of fodder antibiotics in nutrition of livestock and poultry as a means of raising productivity and reducing the losses"

Report to be submitted for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas - Geneva, Switzerland, 4-20 Feb 63

SOLNTSEV, Konstantin Mikhaylovich; SAPUNOV, Vasiliy Andreyevich; SALTYKOV, Fedor Ivanovich; NIKOLAYEVA, Yuliya Nikolayevna; MAGON, E.E., red.; BARANOVA, L.G., tekhn. red.

[Growth stimulators for farm animals] Stimuliatory rosta sel'skokhoziaistvennykh zhivotnykh. [By] K.M.Solntsev i dr. Moskva, Sel'khozizdat, 1963. 290 p. (MIRA 16:12)
(Feeding) (Growth promoting substances)

SOLNTSEV, K.M.

Using the feed preparation of vitamin B_{12} and feed grisin in fattening swine for meat. Vit. res. i ikh isp. no.6:102-110 '63. (MIRA 17:1)

1. Belorusskiy nauchno-issledovatel'skiy institut zhivotnovodstva, Minsk.

SHUMSKIY, F.I., otv. red.; GAVKO, A.A., red.; VOYTKO, D.I., red.; KAZELIN, V.N., red.; NAGORSKAYA, Ye.D., red.; SOLNTSEV, K.M., red.; SIDORENKO, G.M., red.; LOMASHEVICH, O., red.

[Increasing the production and improving the quality of meat; transactions of the White Russian Research Institute of Animal Husbandry] Uvelichenie proizvodstva i uluchshenie kachestva miasa; trudy Belorusskogo nauchno-issledovatel'skogo instituta zhivotnovodstva. Minsk, Izd-vo "Urozhai," 1964. 155 p. (MIRA 17:7)

1. Minsk. Instytut zhyvelahadouli.

[illegible], K. ., kand. sel'khoz. nauk; SHUL'GA, K., red.

[Manual on feed antibiotics] Spravochnik po kormovym antibiotikam. Minsk, Izd-vo "Urozhai," 1964. 349 p.
(MIRA 17:8)

[illegible], [illegible], [illegible], [illegible], [illegible].

Feed Water

Plan for feeding boulers during operation without water regulators. Elek. sta., 23, No. 6, 1952.

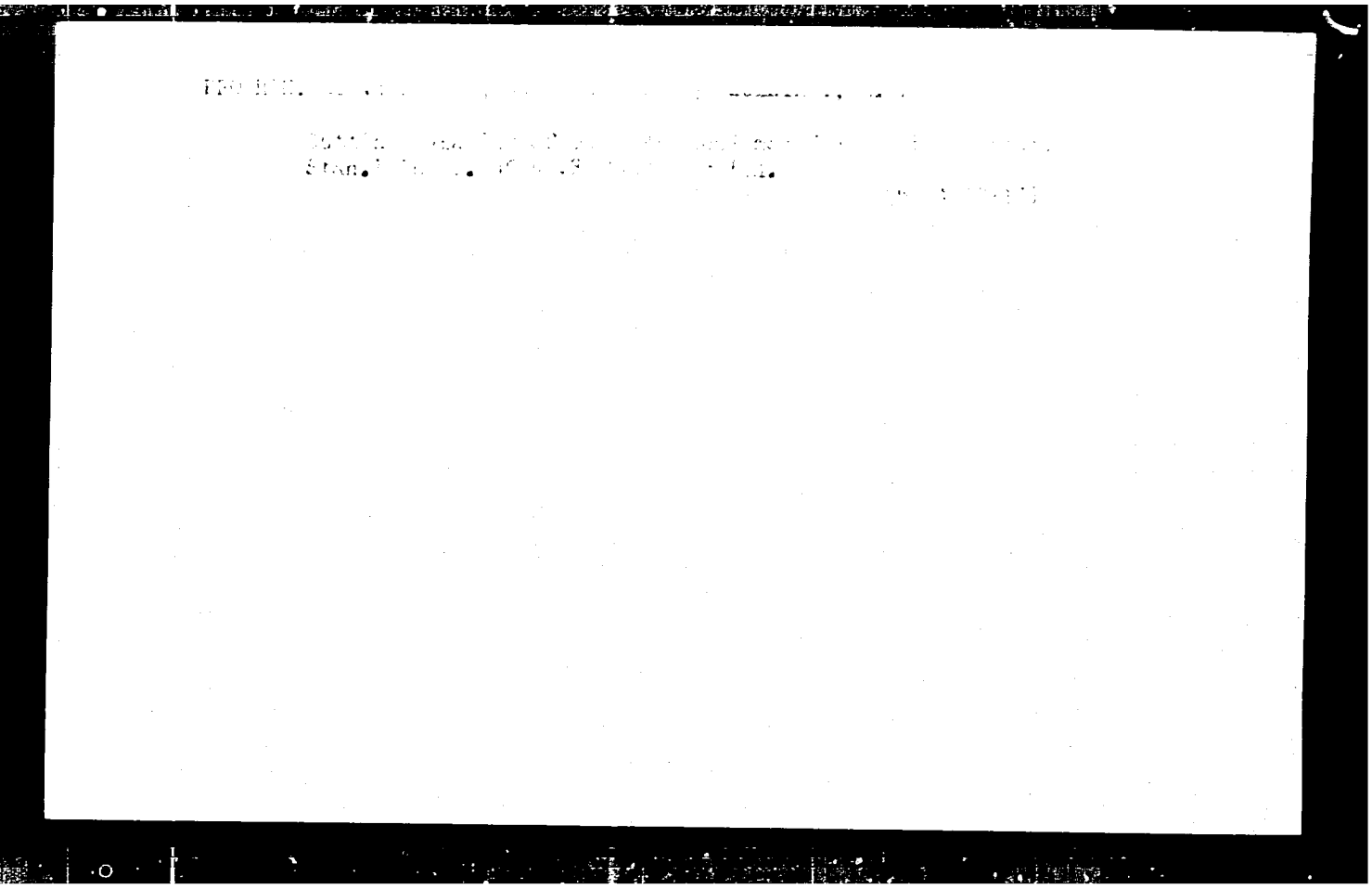
9. Monthly List of Russian Accessions, Library of Congress, October 1952 ~~1952~~ 1953, Uncl.

[illegible], I. Ya., engr.

Steam Turbines

Using power reserves of turbines. Elek.sta. 23 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.



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[illegible] SIV, L. A. -- "Some Problems of the Unequilibrated Crystallization of Alloys." "In Higher Education USSR. Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov. Tomsk, 1955. (Dissertation for the Degree of Candidate in Technical Sciences)

SOURCE Knizhnaya Letopis' No 6 1956

PETRICHENKO, A.M.; SOLNTSEV, L.A.; BURAKOV, L.M.; TOROPOV, A.I.

Investigating distributing shafts made of magnesium cast iron.
Lit. proizv. no.6:22-23 Je '62. (MIRA 15:6)
(Cast iron—Testing) (Shafting—Testing)

PROSHIN, G.A., kand.tekhn.nauk; SOLNTSEV, L.A., kand.tekhn.nauk; RUDYAK, N.I., inzh.; FOMIN, L.D., inzh.

Cutting tools made of high-speed cast steel modified with titanium. Mashinostroenie no.4:108-112 Jl-Ag '62. (MIRA 15:9)

1. Khar'kovskiy avtodorozhnyy institut.
(Metal-cutting tools)

SOLNTSEV, L.L.; ROZENBERG, M.B.

Survey of foreign books and magazines. Sel'khozmashina no.5:3 of cover My '57. (MLRA 10:5)

(Bibliography--Agriculture)

SOLNTSEV, L. N.

SOLNTSEV, L. N.: "The architecture of rural hydroelectric power stations." Moscow Architectural Inst. Moscow, 1956. (Dissertation for the Degree of Candidate in Architectural Sciences)

Source: Knizhnaya letopis' No. 28 1956 Moscow

SOLNTSEV, L.N., kand. arkhitektury

Standardization of rural hydroelectric power stations. Mekh. i elek. sots. sel'khoz. 19 no.3:52-54 '61. (MIRA 14:6)

1. Moskovskiy arkhitekturnyy institut.
(Hydroelectric power stations)

SHRAMKO, B.A.; PETRICHENKO, O.M. [Petrychenko, O.M.]; SOLNTSEV, L.O.; FOMIN, L.D.

Investigating old-Russian iron articles in the ancient settlement of Donetskoye. Nar.z ist.tekh. no.7:74-87 '61. (MIRA15:2)

(Kharkov Province—Excavations(Archaeology))

Journal of the Iron and Steel Institute
Vol. 176 Part 3
Mar. 1954
Foundry Practice

Making Steel Castings from Steel Produced in a Small Converter. M. A. Solntsov, L. M. Chemodanov, and A. A. Kutin. (*Liteinoe Proizvodstvo*, 1953, (5), 8–11). [In Russian]. Details are given of the production of steel castings for service at temperatures up to 425° C. The steel is made in 2½-ton Bessemer converters with a charge consisting of 50% cast iron, 12% steel scrap 5 to 50 mm. thick, 29·8% of clean foundry steel scrap and 8·2% of ferrosilicon. For cast irons high in sulphur, fluorspar is added to the flux and soda ash to the ladle. Compositions and properties of mould and core materials are tabulated, and their treatment is described.

SOLNTSEV, M.N.

Use of magnesium and prospects for expanding its production. Izv. vys. ucheb. zav.; tsvet. met. 3 no.4:157-163 '60. (MIRA 13:9)

1. Sovet po izucheniyu proizvoditel'nykh sil AN SSSR.
(Magnesium--Metallurgy)

SOLNTSEV, M., inzh., kand.ekon.nauk

Magnesium extracted from water. Tekh.mol. 28 no.9:4 '60.
(MIRA 13:10)

(Magnesium) (Sea water)

SOLOV'EV, ... P.

"On the Question of the Construction, Theory and Testing of Single Cable Self-Grippers." Cand Tech Sci, Sverdlovsk Mining Inst imeni V. V. Vakhrushev, Min Higher Education USSR, Sverdlovsk, 1955. (KL, No 10, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

SOLNTSEV, M.P., dotsent; YEMEL'YANOV, V.S., starshiy prepodavatel'

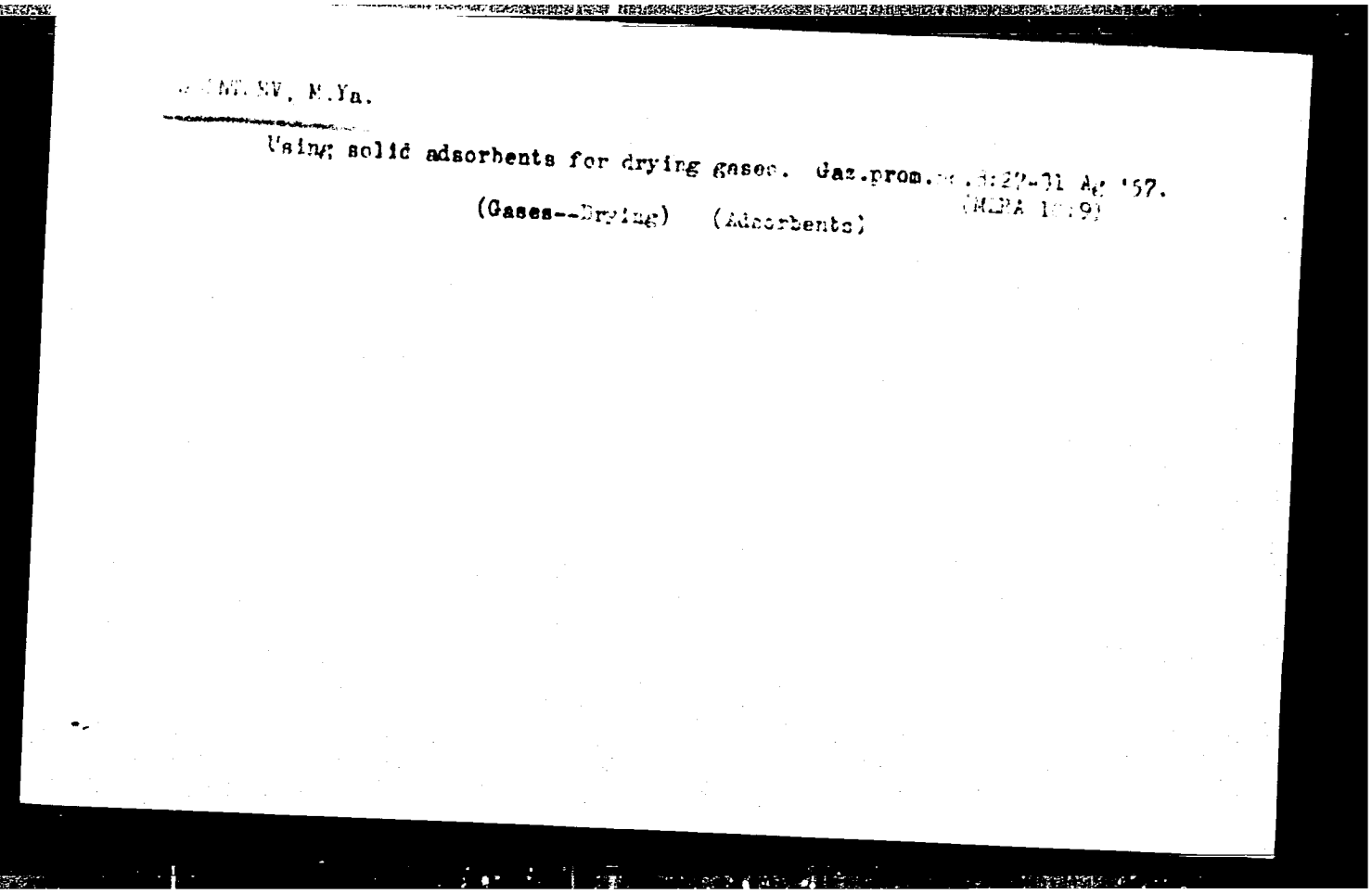
Theory of a two-rope grab-loader for loose, small-size materials. Izv. vys. ucheb. zav.; gor. zhur. no.9:125-132 '60. (MIRA 13:9)

1. Sverdlovskiy gornyy institut im. V.V. Vakhrusheva. Rekomend. kafedroy prikladnoy mekhaniki.
(Ore handling--Equipment and supplies)

SOLNTSEV, M. YA.

"Experimental and Theoretical Basis for Calculating and Designing Apparatus for Drying Hydrocarbon Gases with the Aid of Solid Adsorbents." Min Higher Education USSR, Moscow Inst of Chemical Machine Building, Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Sciences)

SO: M-955, 16 Feb 56



[illegible]NT, SV, M.Ya.

Using solid adsorbents for drying gases. Gaz.prom.[illegible]:27-31 Ag '57.
(MLRA 10:9)

(Gases--Drying) (Adsorbents)

SOLNTSEV, M.Ya., kand.tekhn.nauk

Drying gases with solid adsorbents. Sbor.st.NIIKHIMMASH no.24:77-90 '58. (MIRA 12:1)
(Gases--Drying) (Adsorbents)

S/154/62/000/006/003/008
D040/D112

AUTHORS: Solntsev, M.Ye., Candidate of Technical Sciences, Tabb, L.S. and Korotayeva, O.K., Engineers

TITLE: Determining the coefficients of heat transfer from gas to a bed of granular material

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 6, 1962, 8-12

TEXT: The heat exchange process between gas (air) and beds of lump basalt, silica gel and active carbon was studied for the purpose of obtaining more accurate heat transfer coefficients, since those obtained in the literature differ. The test installation from the Department of Machines and Apparatus for the Chemical Processing of Fuel of MIKhM is described in detail and illustrated in a diagram. The heat transfer coefficients were determined by Maykov's method (V.P. Maykov, Candidate's Dissertation, MIKhM, 1954), which is simple yet gives sufficiently accurate results. The interdependence of the Nusselt and Reynolds criteria was determined by the

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Determining the coefficients ... S/194/62/000/006/003/008
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method of least squares for basalt fractions of 2-5 mm, 5-4.0 mm, and 0.8-2 mm diam, and for silica gel and carbon fractions with equivalent diameters calculated from the formula for particles of nearly globular shape. The found dependences are:

$Nu_{V_e} = 0.106\ Re_e^{0.88}$ for basalt; $Nu_{V_e} = 0.095\ Re_e^{0.88}$ for silica gel; $Nu_{V_e} = 0.105\ Re_e^{0.88}$ for active carbon (at Re_e = 90-250),

where V - air flow in m^3/hr, and e - equivalent. The obtained formulas are more general than those derived previously. It is recommended to use the formula $Nu_{V_e} = 0.1\ Re_e^{0.88}$ for approximate calculations in the case of a turbulent process if there are no empirical data for the material or if the charge parameters are not known. Graphs show the determined interdependence of the Nu and Re numbers. There are 4 figures.

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SOLNTSEV, M.Ya., kand.tekhn.nauk; BOBE, L.S., inzh.; KOROTAYEVA, G.K., inzh.

Determining the coefficient of heat transfer from gas to a bed of free flowables. Khim. mashinostr. no. 6:8-12 N-D '62. (MIRA 17:9)

Solntsev, N.

PHASE I BOOK EXPLOITATION SOV/6261

Kernenergie und Flotte; Artikelsammlung (Nuclear Energy and the Navy; Collection of Articles) [Berlin] Deutscher Militarverlag [1961]. 232 p. Errata slip inserted. 2000 copies printed.

Translation from the Russian of: Atomnaya energiya i flot.

Translator: Erika Stouk, Lieutenant Commander. Responsibility for German edition: Claus Gruszka, Engineer; Ed.: Klaus Krumsieg.

PURPOSE: This collection of articles is intended for officers of the army, coast guard, and merchant marine.

COVERAGE: The book, a translation from the Russian, contains 25 articles dealing with the application of nuclear weapons to naval combat operations. Chapters 19 and 25 have been supplemented with additional data for this edition. The devastating features of nuclear explosions are discussed. Attention is also given to the protection of personnel, ships, and coastal facilities against nuclear weapons, and to the present and future applications of nuclear power plants to shipping. No personalities are mentioned. There are 16 references: 10 Russian (including 3 translations from English-language sources), 1 French, 1 German, 1 English, 1 American, and 2 either English or American.

SOLNTSEV, N.A.

"Geography of the U.S.S.R." M.IA.Pavlov, V.P.Goroshchenko. Reviewed by N.A.Solntsev.Geog. v shkole no.3:78-80 My-Je '47. (MLRA 9:6)
(Geography) (Pavlov, M.IA.) (Goroshchenko, V.P.)

1. SOINTSOV, N. A.

2. USSR (600)

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7. Geographic research stations and their tasks. Trudy Geog. st. "Krasnovidovo" no. 1 1948

Monthly Lists of Russian Accessions, Library of Congress, March, 1953, Unclassfied.

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7. Forest Steppe of Russian Lowlands, F. N. Mil'kov. (Experience of Landscape Characteristics, Acad of Sci USSR, Institute of Geography, Moscow, Press of Acad Sci USSR, 1950). Reviewed by N. A. Solntsev, Sov. Kniga, No. 11, 1951.

9. [redacted] Report U-3081, 16 Jan. 1953, Unclassified.

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Geografiya (Geography) Moskva, izd-vo miskvoskogo uniersiteta, 1974.

198 p. illus., maps, diagrs., tables. (Moscow. Unieersitet. Uchenyye Zapiski, vyp. 170)

LYALIKOV, Nikolay Ivanovich; SOLNTSEV, N.A.

[Geography of the U.S.S.R.; manual for teachers] Geografiia SSSR. posobie dlia uchitelei. Moskva, Uchpedgiz, 1955. 531 p.
(Geography--Study and teaching) (MLRA 9:3)

SOLNTSEV, N.A.

"P. I. Rychkov: Life and geographic works." F.N. Mil'kov. Reviewed by N.A. Solntsev. Izv.Vses.geog.ob-va 88 no.2:211-212 Mr-Ap '56. (MLRA 9:8)

(Rychkov, Petr Ivanovich, 1712-1777) (Mil'kov, F.N.)

TSYS', P.N.; KALESNIK, S.V.; SOKOLOV, N.N.; CHOCHIA, N.S.; PROTOPOPOV, A.P.; ZABELIN, I.M.; GVOZDETSKIY, N.A.; YEFREMOV, Yu.K.; KARA-MOSKO, A.S.; KOZLOV, I.V.: SOLNTSEV, N.A.; ISACHENKO, A.G.; ARMAND, D.L.; MIROSHNICHENKO, V.P.; PETROV, K.M.; KAZAKOVA, O.N.; MIKHAYLOV, N.I.; PARMUZIN, Yu.P.; GERENCHUK, K.I.; MIL'KOV, F.N.; TARASOV, P.V.; NIKOLAYEV, V.N.; SOBOLEV, L.N.; RYBIN, N.N.; DUMIN, B.Ya.; IGNAT'YEV, G.M.; MEL'KHEYEV, M.N.; SANEBLIDZE, M.S.; VASIL'YEVA, I.V.; PEREVALOV, V.A.; BASALIKAS, A.B.

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1. Moskovskiy universitet, geograficheskiy fakul'tet, Kafedra fizicheskoy geografii SSSR.
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1. Kafedra fizicheskoy geografii SSSR Moskovskogo universiteta.
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